

**NRL/ASEE  
POSTDOCTORAL FELLOWSHIP PROGRAM**  
GRANT # N00014-94-2-C002

**Final Report**

Administered By  
The American Society for Engineering Education  
Prepared and Submitted By  
Sandi Crawford

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# REPORT DOCUMENTATION PAGE

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14. ABSTRACT  From April 1, 1994 through April 30, 1998 the Naval Research Laboratory (NRL) sponsored the NRL Postdoctoral Fellowship Program, administered by the American Society for Engineering Education. The objective of the program was to encourage the involvement of creative, capable and highly trained scientists and engineers from academia and industry in areas of great interest and relevance to the Navy. Participants were given the opportunity to work in a unique Navy laboratory environment while interacting with senior laboratory scientists and engineers. During the course of the grant, ASEE received 121 applications for the program, 100 of which were offered appointments and 66 fellows accepted. At the completion of their tenures, more than half of the participants took jobs at NRL or in academia. Research productivity was high, as demonstrated by the 217 published papers, 181 conference presentations, and 20 patent applications.				
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**Final Report**  
**NRL Postdoctoral Fellowship Program**  
**Administered by The American Society for Engineering Education**  
**Grant Number N00014-94-2-C002**

**Introduction**

From April 1, 1994 through April 30, 1998 the Naval Research Laboratory sponsored the NRL Postdoctoral Fellowship Program, administered by the American Society for Engineering Education. The objective of this program was to encourage the involvement of creative, capable and highly trained scientists and engineers from academia and industry in areas of great interest and relevance to the Navy. Participants were given the opportunity to work in a unique Navy laboratory environment while interacting with senior Naval laboratory scientists and engineers.

Fellows were competitively selected on the basis of their overall qualifications and technical proposals addressing specific areas defined by the host divisions and laboratories, recommendations by the Naval Research Laboratory, academic qualifications, reference reports, and availability of funds. All applicants were required to be U.S. citizens and were required to pass a security clearance. The selection of fellows occurred quarterly: January 1, April 1, July 1, and October 1. Fellowships were awarded for one year and were renewable for an additional two years for a total of three years maximum. ASEE provided all of the administrative and professional services necessary to advertise the program nationally, fulfill application requests in a timely manner, process the completed applications, and organize an evaluation team to make recommendations to NRL. This evaluation team was made up of university faculty from various scientific and engineering disciplines representative of those research areas sought by NRL and were selected based both on their past experience as postdoctoral program advisors and/or as review panelists for this program. At the direction of NRL, ASEE notified successful applicants of their awards, managed the payments of all participant expenses; and compiled data on all applicants and participants for the purpose of submitting monthly, quarterly and annual reports.

ASEE was responsible for administering all aspects of the program including the payment of monthly stipends, providing the fellows with health and life/accidental death and dismemberment, and long-term disability coverage and providing travel and relocation reimbursements. NRL submitted the funds necessary for providing each fellow with monthly stipend payments, a travel and relocation budget, and individual health and life/accidental death and dismemberment, and long-term disability policies. Files and databases were maintained to keep track of each individuals stipends and travel and relocation balances. Participants were required to submit semiannual progress reports and a final report on their research activities, including relevant interactions with laboratory personnel, other research associates, and technical points of contact.

## **Publicity**

ASEE created and distributed informational materials for the NRL Postdoctoral Fellowship Program as part of a direct mailing campaign. An application brochure was created each year in collaboration with NRL research sites, detailing all of the research opportunities available to postdoctoral researchers (see attachment A). The brochure also contained information about the program including application guidelines and procedures, persons to contact for more information, and general program information

Print advertising, in the form of display ads in magazines, were also used to publicize the program (see attachment B). ASEE's Publications Department, in consultation with NRL, was responsible for the design and production of half-page, black and white advertisements which were placed in various publications during the fall of each year. ASEE advised NRL on the most appropriate publications for promoting the NRL Postdoctoral Fellowship Program and was responsible for placing the program advertisements. Recently, ASEE advertised NRL's postdoctoral opportunities in several magazines, including *SWE Magazine*, *IEEE Spectrum*, *Physics Today*, *ASEE Prism*, *Ms.Ph.D.*, *Communications of the ACM*, and *Sea Technology*. These magazines were chosen for their breadth of audiences and distribution and their appropriateness for the current research activities of NRL laboratories

ASEE made every effort to recruit qualified applicants from under-represented groups in science and engineering disciplines, including women and members of ethnic minority groups. ASEE used direct mailings, print advertising, and Internet resources to recruit women and minorities for the program

## **Applications**

A completed application consisted of the following:

**Application Form-** The NRL Postdoctoral Fellowship application contained data on the persons educational background, honors, past employment, and references. This information was maintained on a database to expedite and control the handling of applications which displayed information required for efficient communication with applicants, for assessment of their eligibility, and for the orderly conduct of the selection process including evidence of ratings and approvals for each step.

**Research Proposal-** All applicants were asked to submit a five to ten page research proposal

based on the specific scientific fields described in the program's booklet. Proposals were reviewed and ranked by university faculty with expert knowledge in the proposed field of research. Applicants were advised that they should first contact the research facility at which they are interested in conducting their research, since proposals developed closely with the proposed host facility stood the greatest chance of success in the review process. Program information did include a listing of each designated laboratory point-of-contact including telephone numbers and E-mail addresses. The research proposal was supposed to address a problem of mutual interest to the applicant and the Navy.

**Curriculum Vitae:** Applicants were required to submit a standard professional resume which includes thesis topics, publications, and research experience.

**Transcripts of Academic Credit:** Evidence of qualification for an award of a doctoral degree supported by transcripts of all undergraduate and graduate courses were required.

**Reference Evaluations:** Applicants were asked to provide reference evaluations of three former academic advisors or employment supervisors who were familiar with their academic and research achievements. A reference information request form was provided in the brochure.

**Laboratory Endorsement:** The NRL advisor and department head were asked to evaluate the research proposal. This evaluation included statements from the laboratory on availability of facilities, equipment and resources, and background information on the laboratory's principle advisor.(see attachment C.)

When applications were received, letters went out to each applicant confirming receipt of their packet and requesting any missing information (see attachment D).

### **Review Process**

ASEE accepted applications on a quarterly basis and provided four panel reviews each year. Applications were initially evaluated by the NRL research facility to confirm the Navy's interest in the applicant, the availability of funding, and that a potential research advisor had been identified. Upon confirmation from the potential sponsoring facility, ASEE began the formal review process. This process consisted of field reviews and NRL Executive Committee Panel Reviews. Providing highly qualified experts to review applications and implementing effective review procedures were of prime importance. ASEE has an extensive network of contacts throughout the academic community and industry and a track record for recruiting the nation's

highly qualified experts, drawn from university science and engineering faculties and from industry, who were asked to participate in the review of applications.

Once the comments and ratings were completed by the field reviewers (see attachment E), ASEE convened a small review panel each quarter in Washington, DC, made up of members of its Evaluation Committee, to review the comments and scores of the field reviewers and to make a recommendation to NRL. The Evaluation Committee was made up of university faculty from various scientific and engineering disciplines representative of those research areas sought by NRL and were selected based both on their past experience as postdoctoral program advisors and/or as review panelists for this program. The importance of the Evaluation Committee was to help ensure there will be consistency and fairness in the review process throughout the period of performance for the contract. The review panel consisted of members of the Evaluation Committee whose disciplinary background best matched the research proposed and expertise of the applicants.

### **Appointment and Administration**

NRL was immediately notified following the review of the panel's recommendations and was requested to make the final approval of candidates within 30 days. The applicants were given sixty (60) days to accept or reject the appointment after the fellowship was offered. Starting dates for those applicants who accept the postdoctoral appointment were negotiable. Solicitation of laboratory recommendations for approval from NRL was required for pending reappointments and allocation of funds. ASEE sent an official letter of appointment to each applicant who was offered and accepts an award (see attachment F). This letter will include terms and conditions of the award (see attachment G). The awardee was required to return a signed copy of this letter. The appointment packet also consisted of Annual and Semi-Annual report guideline (attachment H), tax information (attachment I), patent information (attachment J), direct deposit forms (attachment K), travel authorization and reimbursement forms (attachment L), and health insurance information and enrolment forms (attachment M).

Upon selection of the fellows, administrative files were established and information was entered into the database (attachment N). Each fellow was required to provide the appropriate data required to begin tenure as an NRL Postdoctoral Fellow. ASEE provided the monthly stipend payments in accordance with the guidelines of the program.

Annual stipends were paid to participants depending on their experience and area of expertise as

described in this solicitation. NRL retained the right to alter the stipend structure during this contract. Stipends were paid in 13 installments beginning on the fellows' reporting date for the first year and 12 installments for following fellowship years. On the reporting date, the fellow had a stipend check upon arrival to the laboratory. The higher stipends were awarded to shortage category disciplines. A relocation allowance was paid and funds were provided for attendance to scientific meetings and conferences important to their research. Stipend payments were electronically transferred directly to each participant's financial institution at the end of each month. Staff familiarity and experience with electronic direct deposit systems and Automatic Data Processing (ADP) enabled ASEE staff to effectively distribute stipend payments, even during peak payment periods

ASEE maintained group health insurance coverage, life/accidental death and dismemberment, and long-term disability coverage. The insurance fully covered participants in lieu of worker's compensation. ASEE had in effect a policy that automatically accepted all participants and coverage began on the first day of the fellowship.

Fellows were expected to submit semi-annual, annual and final reports documenting progress on their research activities, including relevant interactions with laboratory personnel, other research associates, technical points of contact, and ASEE. Progress reports referred to and summarized all presentations, articles, reports and publications which present the research activity sponsored by and/or acknowledging the NRL Postdoctoral Fellowship Program. Progress reports were signed and forwarded by the participant's laboratory advisor. These reports were kept in their files and the dates entered into ASEE's database (see attachment O.)

#### **Statistical Information**

During the period of April 1, 1994 through April 30, 1998 ASEE received one hundred twenty one applications for NRL fellowships. Of those one hundred twenty one applications submitted, one hundred were approved by the evaluation panel, one hundred were offered appointments and sixty six accepted.

At the completion of their tenures, twenty eight percent of the fellows received permanent positions at the Navy Laboratories, twenty six percent at colleges or universities, Fourteen percent in industry, and five percent at federal agencies. Finally, the fellows wrote 217 papers, presented at 181 conferences, and submitted 20 patents.

**FELLOWS ON TENURE**  
**April 1, 1994 - April 30, 1998**

**NAVAL RESEARCH LABORATORY**

**AIFER, Edward, Ph.D.**

Code 5613, (202) 767-3276

Degree: Boston University, Electrical Engineering, December 1996

Proposal: "Lateral Resonant Interband Tunneling Transistor Based on InAs/GaSb/AlSb Heterostructure"

Advisor: Dr. J.R. Meyer

Start Date: **March 24, 1997**

**ALEXANDER, William, Ph.D.**

Code 6174, (202) 767-1115

Degree: University of Florida, Materials Science, September 1997

Proposal: "Growth of Electronic-Grade Diamond: An Investigation of Defects and Structure of Homoepitaxial Diamond Films Grown by Plasma-Assisted Chemical Vapor Deposition"

Advisor: Dr. James Butler

Start Date: **April 3, 1995**

**ANDERSON, Michele, Ph.D.**

Code 6170, (202) 404-8698

Degree: University of Arizona, Chemistry, September 1997

Proposal: "Fundamental Characterization of Colloidal Metal Aerogels and their Application as Advanced Sensor Materials"

Advisor: Dr. Debra Rollison

Start Date: **September 3, 1997**

**ATKINSON, Elizabeth Ph.D.**

Code 6170, (202) 404-8697

Degree: University of Arizona, Chemistry April 1995

Proposal: "Decomposition of Organic Pollutants in Aqueous Environments Via Modifications to Electrified Microheterogeneous Catalysis."

Advisor: Dr. Debra Rollison

Start Date: **June 10, 1996**

**BART, John, Ph.D.**  
Code 6900, (202) 767-1681  
Degree: California Institute of Technology, Chemistry, August 1994  
Proposal: "Detection of hazardous Wastes in Soil Samples Using the Continuous-Flow Immunosensor"  
Advisor: Dr. Francis Ligler  
Start Date: **September 14, 1994**

**BASELT, David, Ph.D.**  
Code 6177, (202) 767-0801  
Degree: California Institute of Technology, Chemistry, May 1993  
Proposal: "A Study of Protein Compressibility by Atomic Force Microscopy"  
Advisor: Dr. Richard Colton  
Start Date: **October 1, 1994**

**BEWLEY, William, Ph.D.**  
Code 5613, (202) 767-3276  
Degree: University of California, Santa Barbara, Physics, February 1992  
Proposal: "AlGaAs-Family T-X Valley Asymmetric Double Quantum Wells for Neat Infrared Broadband Electro-Optical Modulators"  
Advisor: Dr. Jerry Meyer  
Start Date: **March 3, 1997**

**BONAFEDE, Salvatore, Ph.D.**  
Code 6123, (202) 767-2268  
Degree: University of Nebraska, Chemistry, December 1993  
Proposal: "Development of Non-Toxic, Stable, Anti-Fouling Hydrocarbon Polymer Coatings"  
Advisor: Dr. Robert Brady  
Start Date: **October 10, 1995**

**BONENBERGER, Robert , Ph.D.**  
Code 6382, (202) 767-5215  
Degree: University of Maryland, Mechanical Engineering, October 1994  
Proposal: "Investigations of Micromechanical Interactions During Ductile Fracture."  
Advisor: Dr. Peter Matic  
Start Date: **December 19, 1994**

**BUCSELÀ, Eric, Ph.D.**

Code 7623, (202) 767-6109

Degree: University of Michigan, Physics, February 1994

Proposal: "Spectroscopic Studies of the Thermosphere."

Advisor: Dr. Robert McCoy

Start Date: **September 12, 1994**

**CLINTON, Darrell, Ph.D.**

Code 6171, (202) 404-6356

Degree: Case Western Reserve University, Chemistry, May 1995

Proposal: "Electrodeposition of Aluminum Alloys from Ambient-Temperature Molten Preparation and Characterization."

Advisor: Dr. William O'Grady

Start Date: **April 8, 1996**

**CLINTON, Thomas, Ph.D.**

Code 6345, (202) 767-5947

Degree: University of Maryland, Physics, September 1992

Proposal: "Spin Transport in Novel Materials"

Advisor: Dr. Mark Johnson

Start Date: **Oct. 2, 1995**

**CONKLIN, Jeanine, Ph.D.**

Code 6672, (202) 767-4800

Degree: University of California, Los Angeles, Chemistry October 1994

Proposal: "Research Metallurgist"

Advisor: Dr. Catherine Cotell

Start Date: **November 1, 1994**

**COTEL, Hector, Ph.D.**

Code 6615, (202) 767-3938

Degree: Oklahoma State University, Physics, July 1993

Proposal: "The Study of Radiation Damage Effects in GaInAs Devices Under Proton Irradiation."

Advisor: Dr. G. Summers

Start Date: **July 6, 1993**

**CRANDALL, Karl, Ph.D.**

Code 6950, (202) 404-6017

Degree: Case Western Reserve, Physics, July 1996

Proposal: "Developing Ferroelectric Liquid Crystalline Polymers for use in Infrared Sensing"

Advisor: Dr. R. Shashidhar

Start Date: **October 1, 1996**

**CROSS, Robert, Ph.D.**

Code 5580, (202) 767-5333

Degree: Indiana University, Computer Science, August 1995

Proposal: "Interactive Virtual Realism: A Distributed Rendering Network"

Advisor: Dr. Lawrence Rosenblum

Start Date: **July 3, 1995**

**DALY, George, Ph.D.**

Code 6672, (202) 767-4788

Degree: Virginia Commonwealth University, Chemistry, August 1995

Proposal: "Colossal Magnetoresistance in Lanthanide Doped Manganite Thin Films for the Development of Layered Magnetoresistance/High Temperature Superconductor Devices"

Advisor: Dr. Doug Chrisey

Start Date: **January 3, 1996**

**DUNN, Derren, Ph.D.**

Code 6176, (202) 767-2327

Degree: Northwestern University, Material Science, December 1992

Proposal: "Microstructural Basis for the Wear of MoS<sub>2</sub> Coatings."

Advisor: Dr. Irwin Singer

Start Date: **October 2, 1995**

**EASHOO, Mark, Ph.D.**

Code 6127, (202) 767-1855

Degree: University of Akron, Polymer Science, May 1994

Proposal: "Fluorofibers"

Advisor: Dr. Leonard Buckley

Start Date: **December 5, 1994**

**ELMORE, Paul, Ph.D. (Stennis)**

Code 7174, (601) 688-5578

Degree: University of Mississippi, Physics, August 1996

Proposal: "High-Frequency Noise, Spatial Distribution and Motion of Bubble Clouds  
in Shallow Water"

Advisor: Dr. J.W. Caruthers

Start Date: **August 1, 1996**

**FRANCESCONI, Stephen, Ph.D.**

Code 6115 (202) 404-6392

Degree: University of Connecticut, Microbiology, December 1992

Proposal: "Genetic Adaption of Catabolic Pathways Based on the Regulation and  
Modulation of Genetic Rearrangements"

Advisor: Dr. Barry Spargo

Start Date: **June 17, 1996**

**GILLIS, David, Ph.D.**

Code 6700, (202) 767-5248

Degree: University of Houston.,Mathematics, August 1996

Proposal: "Hyperspectral Imaging and the Endmember Grouping Problem"

Advisor: Dr. Peter Palmadesso

Start Date: **January 20, 1998**

**GIRALDO, Francis, Ph. D.**

Code 7532, (408) 656-4704

Degree: University of Virginia, Mechanical and Aerospace, January 1995

Proposal: "A Semi-Lagrangian Galerkin Model for the Primitive Meteorological  
Equations."

Advisor: Dr. T.F. Hogan

Start Date: **April 4, 1996**

**GREEN, John-Bruce, Ph.D.**

Code 6177, (202) 404-7547

Degree: Iowa State University, Chemistry, December 1996

Proposal: "Fabrication and Characterization of Nanometer-Scale Patterns Using  
Atomic Force; Microscopy: An Application to Biomolecular Engineering"

Advisor: Dr. Gil Lee

Start Date: **December 9, 1996**

**HART, Darlene, Ph.D.**  
Code 5671, (202) 767-4928  
Degree: Georgia Institute of Technology, Physics, March 1996  
Proposal: "Frequency Conversion in Field Poled Quasi-Phase-Matched Bulk Materials"  
Advisor: Dr. William K. Burns  
Start Date: **June 17, 1996**

**HOINES, Lilian, Ph.D.**  
Code 6345, (202) 767-3603  
Degree: Michigan State University, Physics, September 1994  
Proposal: "Magnetism of Ultrathin Metal Films and Multilayers."  
Advisor: Dr. Yves Idzerda  
Start Date: **December 19, 1994**

**HOLLAND, Kenneth, Ph.D.**  
Code 7405, (202) 688-5404  
Degree: Oregon State University, Oceanic and Atom, Science, March 1995  
Proposal: "Mine Behavior in the Swash and Inner Surf Zones."  
Advisor: Dr. John Church  
Start Date: **April 4, 1995**

**HOUSER, Eric, Ph.D.**  
Code 6127, (202) 767-3095  
Degree: University of Illinois, Chemistry, May 1993  
Proposal: "The Synthesis and Characterization of New Materials Derived from  $R_2C_2B_{10}H_{10}$  Containing Polymers"  
Advisor: Dr. Teddy Keller  
Start Date: **October 2, 1995**

**HUGHES, David H., Ph.D.**  
Code 7132, (202) 404-7450  
Degree: University of Missouri, Rolla, Physics, December 1992  
Proposal: "Phase Space Methods in Wave Propagation Problems"  
Advisor: Dr. Charles Gaumond  
Start Date: **October 1, 1993**

**JERNIGAN, Glenn, Ph.D**  
Code 6812, (202) 404-8541  
Degree: University of California, Berkeley, Chemistry  
Proposal: "Surface Characterization of Si-Ge Heterostructures Grown by MBE"  
Advisor: Dr. Phillip Thompson  
Start Date: **November 11, 1994**

**JOHNSON, Gregg, Ph.D.**

Code 6341, (202) 767-6246

Degree: Ohio University, Physics, August 1995

Proposal: "Synchronization of Chaotic Systems for Communication Application"

Advisor: Dr. Thomas L. Carroll

Start Date: **October 7, 1996**

**JOHNSTON, Erika, Ph.D.**

Code 6910

Degree: University of Washington, Chemical Engineering, December 1997

Proposal: "Photoreceptor Protein Biofuel Cells"

Advisor: Dr. David Conrad

Start Date: **January 5, 1998**

**KAECHELE, Walter, Ph.D.**

Code 5671, (202) 767-5273

Degree: Rensselaer Polytechnic Institute, Physics, November, 1997

Proposal: "Study of the Integration of a Semiconductor Saturable Absorber into an Optical Fiber System to Achieve All-Optical Clock Recovery"

Advisor: Dr. Irl Duling

Start Date: **January 12, 1998**

**KELLEY, Cheryl, Ph.D.**

Code 6115, (202) 404-6392

Degree: University of North Carolina, Marine Sciences, December 1993

Proposal: "Biogeochemical Process of Contaminated Marine Sediments"

Advisor: Dr. Barry Spargo

Start Date: **July 1, 1996**

**KHOL, James, Ph.D.**

Code 6176, (202) 767-2327

Degree: Rensselaer Polytechnic Institute, Mechanics, May 1995

Proposal: "Durability Studies of Duplex Silicone Elastomer Coatings"

Advisor: Dr. Irwin Singer

Start Date: **October 2, 1995**

**KIM, Chung, Ph.D.**

Code 6174, (202) 767-1115

Degree: University of Michigan, Chemistry, Dec. 1994

Proposal: "Multiple Internal Reflection Infrared Spectroscopy of Fluorine Absorbed on Diamond (110)"

Advisor: Dr. J. Butler

Start Date: **Sept. 4, 1995**

**KRAL, Milo, Ph.D.**

Code 6324, (202) 767-2622

Degree: Vanderbilt University, Material Science, December 1995

Proposal: "Three Dimensional Reconstruction of Windmanstatten Ferite Precipitates."

Advisor: Dr. George Spanos

Start Date: **March 4, 1996**

**KNIES, David, Ph.D.**

Code 6671, (202) 767-4800

Degree: Purdue University, Physics, August 1995

Proposal: "Trace Elemental Accelerator Mass Spectrometry"

Advisor: Dr. Graham Hubler

Start Date: **October 4, 1994**

**LUNDGREN, Jeffrey, Ph.D.**

Code 6910, (202) 404-6125

Degree: SUNY at Buffalo, Chemistry, July 1996

Proposal: "Development of Fluorescence-Based Fiber Optic Biosensor Assays for Mercury"

Advisor: Dr. Lisa Shriver-Lake

Start Date: **September 2, 1997**

**MANGAN, Michael, Ph.D.**

Code 6324, (202) 767-2318

Degree: University of Virginia, Engineering Physics, October 1997

Proposal: "Microstructural Evolution in Thin Films and Multilayers"

Advisor: Dr. George Spanos

Start Date: **October 27, 1997**

**MARTIN, Brett, Ph.D.**

Code 6930, (202) 404-6021

Degree: University of Iowa, Chemical Engineering, May 1996

Proposal: "Micropatterned Antibody 'Stamping' from Sugar-Containing Poly (Acrylate) Hydrogels"

Advisor: Dr. David Turner

Start Date: **September 9, 1996**

**MASON, Whitney, Ph.D.**

Code 6818, (202) 404-7945

Degree: University of Oklahoma, Physics, September 1996

Proposal: "DLTS Studies of Defect Centers in InAs/GaInSb SLS"

Advisor: Dr. J. M. Killiany

Start Date: **January 8, 1997**

**MITCHELL, John, Ph.D.**

Code 6170

Degree: University of Mississippi, Chemistry, November 1997

Proposal: "Electrodeposition of Transition Metal Aluminum Alloys from Room Temperature Molten Salts"

Advisor: Dr. Paul Trulove

Start Date: **February 2, 1998**

**NADGORNY, Boris, Ph.D.**

Code 6340, (202) 767-4659

Degree: SUNY at Stony Brook, Physics, December 1996

Proposal: "Spin Polarized Carriers in Hybrid Ferromagnet-Semiconductor Structures"

Advisor: Dr. Mark Johnson

Start Date: **April 1, 1997**

**NIVENS, Delana, Ph.D.**

Code 6910, (202) 767-4800

Degree: University of South Carolina, Chemistry, December 1997

Proposal: "Optimization of Photoactivatable Silane Chemistry and Sensor Geometry for the Fabrication of Planar Multianalyte Imaging Biological Warfare Agent Immunosensors"

Advisor: Dr. Fran Ligler

Start Date: **January 20, 1998**

**NGUYEN, Thoung, Ph.D.**

Code 6404, (202) 767-7090

Degree: University of Maryland, Aerospace Engineering, May 1995

Proposal: "Particle and Molecular Dynamics"

Advisor: Dr. Elaine S. Oran

Start Date: **June 16, 1995**

**OESCHGER, John, Ph.D.**

Code 7120, (202) 767-3359

Degree: University of Rhode Island, Physics, June 1993

Proposal: "High Frequency Acoustics Scattering from Turbulence"

Advisor: Dr. Marshall Orr

Start Date: **July 1, 1996**

**OSTERMAN Steven N., Ph.D.**

Code 7623, (202) 767-6109

Degree: University of Colorado, Physics, September 1993

Proposal: "EUV Spectroscopy of the Ionosphere"

Advisor: Dr. Robert McCoy

Start Date: **December 27, 1993**

**PATRICK, Heather, Ph.D.**

Code 5673, (202) 767-9307

Degree: University of Colorado, Physics, May 1995

Proposal: "Permanent and Transient Fiber Bragg Gratings: Sensing Limitations and Applications"

Advisor: Dr. Sandeep Vorha

Start Date: **January 11, 1996**

**POGOZELSKI, Wendy Ph.D.**

Code 6615, (202) 767-3938

Degree: Johns Hopkins University, Chemistry, October 1994

Proposal: "The Influence of Hydroxyl Radical Scavenging on the Mechanism of Radiation-Induced DNA Damage in Aqueous Solution."

Advisor: Dr. Michael Xapsos

Start Date: **October 3, 1994**

**POSEY, Ralph, Ph.D.**

Code 5673, (202) 767-9307

Degree: Alabama A&M, Applied Physics, December 1996

Proposal: "Application of Stimulated Raman and Brillouin Scattering Effects Combined with Bragg Grating-Based Sensors for Simultaneous Distributed Measurements of Strain and Temperature in Optical Fibers"

Advisor: Dr. Sandeep Vorha

Start Date: **April 28, 1997**

**POTTER, Mitchell, Ph.D.**

Code 5514, (202) 404-4939

Degree: George Mason University, Information Technology, May 1997

Proposal: "Coevolving Behavior and Strategies for Autonomous Robots"

Advisor: Dr. John Grefenstette

**Start Date:** **Oct. 14, 1997**

**REED, Robert Ph.D.**

Code 6611, (202) 767-9098

Degree: Clemson University, Physics, August 1994

Proposal: "The Study of the Permanent and Transient Radiation Damage Effects in Si Microvolumes Using Monte Carlo Techniques"

Advisor: Dr. Cheryl Dale

**Start Date:** **June 5, 1995**

**ROWE, Chris, Ph.D.**

Code 6910, (202) 404-6114

Degree: Johns Hopkins University, Biology, March 1995

Proposal: "Development of a Fiber Optic Biosensor for Sepsis and Sepsis Syndrome"

Advisor: Dr. Frances Ligler

**Start Date:** **March 1, 1996**

**RYCHNOVSKY, Steven, Ph.D.**

Code 8123, (202) 767-0170

Degree: University of Iowa, Electrical Engineering, December 1994

Proposal: "High Speed Photorefractive Media for Near Infrared Wavelengths."

Advisor: Dr. Charmaine Gilbreath

**Start Date:** **January 3, 1995**

**SCHNEIDER, James, Ph.D.**

Code 6177, (202) 404-7218

Degree: University of Minnesota, Chemical Engineering, March 1998

Proposal: "Functionally Probing Polymer Surfaces Which Resist Adhesion"

Advisor: Dr. Gil Lee

**Start Date:** **April 9, 1998**

**SILVESTRE, Conrad, Ph.D.**

Code 6812, (202) 404-8541

Degree: Princeton University, Electrical Engineering, June 1991

Proposal: "MBE Growth and Characterization of SiGe for Optoelechronic and Heterojunction Bipolar Transistor Applications."

Advisor: Dr. Phillip Thompson

**Start Date:** **March 1, 1995**

**STODDARD, Ronald, Ph.D.**

Code 6122, (202) 767-2025

Degree: Washington University, Physics, November 1997

Proposal: "Eliminating Acoustic Ringing from NQR Detection of Explosives"

Advisor: Dr. Allen Garroway

**Start Date: December 15, 1997**

**STOKES, Kevin, Ph.D.**

Code 6341, (202) 767-2219

Degree: Rensselaer Polytechnic Institute, Physics, May 1995

Proposal: "Investigation of the Methods of Determining the Thermoelectric Figure of

Merit and Application to Potential Thermoelectric Materials"

Advisor: Dr. Terry Tritt

Start Date: **Nov. 13, 1995**

**SUNDAR, Raj, Ph.D.**

Code 6120, (202) 767-3095

Degree: Univ. Of Southern Mississippi, Polymer Science, May 1994

Proposal: "Thermally Stable Polyacetylenes Containing Phosphorus and Silicon"

Advisor: Dr. Teddy Keller

Start Date: **July 12, 1994**

**SWIDER, Karen E., Ph.D.**

(202) 404-7450

Degree: Univ. of Pennsylvania, Materials Science, December 1992

Proposal: "The Direct Oxidation of Methanol on Carbon-Supported Metal Electrodes  
in Proton Exchange Membrane Fuel Cells (PEMFCs)"

Advisor: Dr. William O'Grady

Start Date: **Oct. 1, 1993**

**TAMANAH, Cy, Ph.D.**

Code 6177, (202) 404-2121

Degree: Worcester Polytechnic Institute, Biomedical Engineering, July 1997

Proposal: "Microengineering Solutions for FABS Technology"

Advisor: Dr. Richard J. Colton

Start Date: **August 4, 1997**

**TODD, Michael, Ph.D.**

Code 5675, (202) 767-0567

Degree: Duke University, Mechanical Engineering, September 1996

Proposal: "The Modeling and Dynamic Response Characterization of At-Sea Crane  
Structures Using Fiber Optic Sensors"

Advisor: Dr. Sandeep Vohra

Start Date: **September 4, 1996**

**WARREN, Harry, Ph.D.**

Code 7665, (202) 767-4415

Degree: Columbia University, Applied Physics, October 1994

Proposal: "Observation of Chaotic Particle Transport Driven by Drift-Resonant  
Fluctuations in the Collisionless Terrella Experiment"

Advisor: Dr. Judith Lean

Start Date: **May 2, 1995**

**WILEY, Douglas, Ph.D.**

Code 5707, (202) 767-3766

Degree: University of South California, Computer Science, December 1995

Proposal: "Advance Signal Processing for Real-Time Modeling and Simulation"

Advisor: Dr. Allen Duckworth

Start Date: **April 1, 1996**

**YAMAUCHI, Brian, Ph.D.**

Code 5514, (202) 404-4947

Degree: Case Western Reserve University, Computer Science, May 1995

Proposal: "Autonomous Exploration and Mapping in Dynamic Environments"

Advisor: Dr. John Grefestette

Start Date: **October 4, 1996**

**ZIESLER-MASHL, Kathryn, Ph.D.**

Code 6325, (202) 767-2925

Degree: Michigan Tech University, Metallurgical Engineering, December 1992

Proposal: "Microstructural Characterization of High Critical Temperature  
Superconducting Materials"

Advisor: Dr. Chandra Panda

Start Date: **February 1, 1997**

# NRL Postdoctoral Fellowship Program

Grant N00014-90-J-1549

April 1, 1996-April 30, 1998

Fellows On Tenure During the period of April 1, 1996-April 30, 1998

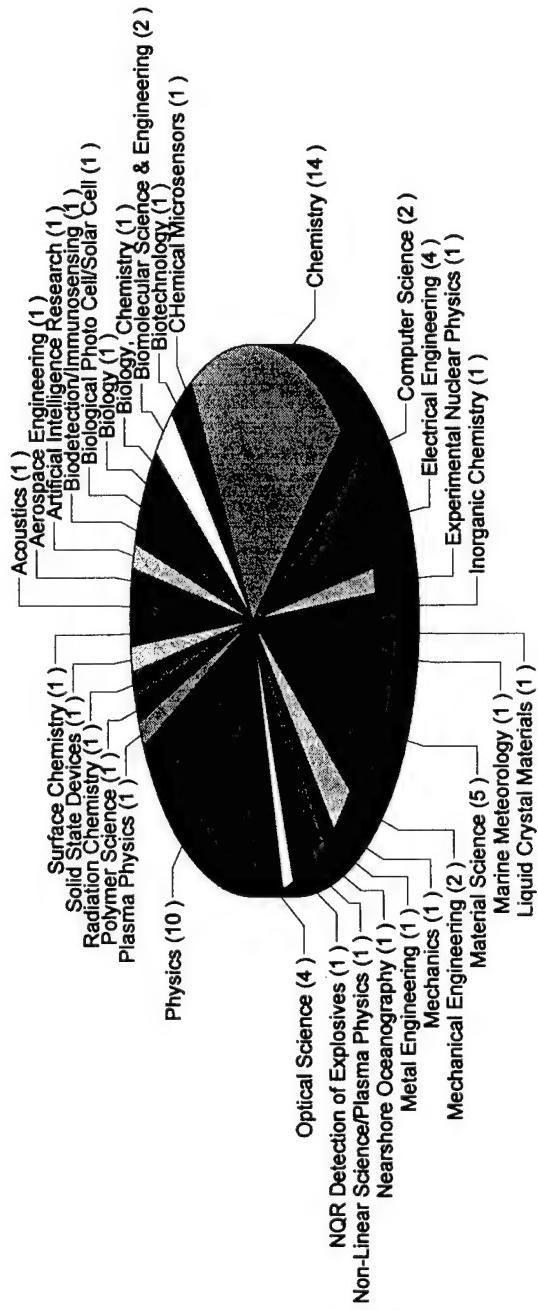
Name	Papers	Presentations	Patents
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Name	Papers	Presentations	Patents
Aifer, Edward	22	30	1
Alexander, Brock	0	0	0
Anderson, Michele	0	0	0
Atkinson, Elizabeth	0	0	0
Bart, John	5	3	1
Baselt, David	0	0	0
Bewley, William	25	35	0
Bonafede, Salvatore	2	0	0
Bonenberger, Robert	0	0	0
Bucsela, Eric	0	0	0
Clinton, Darell	3	3	0
Clinton, Thomas	3	3	1
Conklin, Jeanine	0	0	0
Cotal, Hector	4	1	0
Crandall, Karl	0	0	0
Cross, Robert	4	0	1
Daly, George	10	5	1
Dunn, Derren	0	0	0
Eashoo, Mark	0	0	0
Elmore, Paul	2	2	0
Francesconi, Stephen	0	0	0
Gillis, David	0	0	0
Giraldo, Francis	0	0	0
Green, John	0	0	0
Hart, Darlene	1	2	0
Hoiness, Lillian	1	2	1
Holland, Kenneth	0	2	0

Houser, Eric	7	3	8
Houghes, David	3	2	0
Jernigan, Glenn	0	0	0
Johnson, Gregg	7	5	2
Johnston, Erica	0	0	0
Kaechele, Walter	0	0	0
Kelley, Cheryl	0	0	0
Kim, Chung	1	1	0
Kohl, James	2	0	0
Kral, Milo	12	7	0
Knies, David	0	0	0
Lungren, Jeffrey	0	0	0
Mangan, Michael	12	11	0
Martin, Brett	0	0	0
Mason, Whitney	1	2	0
Mitchell, John	4	4	0
Nadgorny, Boris	7	2	0
Nguyen, Thuong	3	2	0
Nivens, Delana	2	1	0
Osterman, Steven	0	0	0
Oeschger, John	0	0	0
Patrick, Heather	11	1	2
Pogozelski, Wendy	2	1	0
Posey, Ralph	2	2	1
Potter, Mitchell	12	2	0
Reed, Robert	3	1	0
Rowe, Chris	7	16	0
Rychnovsky, Steven	2	1	0
Silvestre, Conrad	0	0	0
Stoddard, Ronald	0	0	0
Stokes, Kevin	3	2	0
Sundar, Raj	4	2	0
Swider, Karen	3	1	0

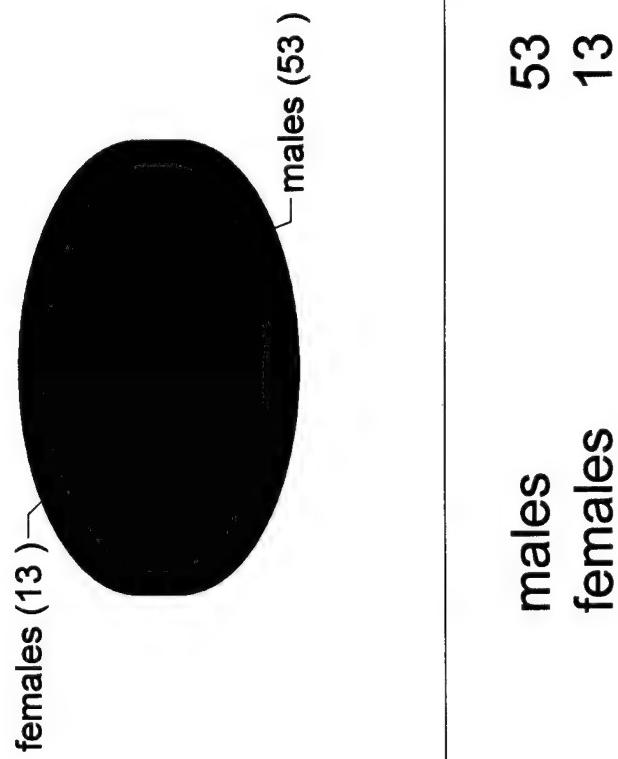
Tamanaha, Cy	0	0	0
Todd, Michael	2	1	1
Warren, Harry	9	10	0
Wiley, Douglas	2	0	0
Yamauchi, Brian	9	10	0
Zeisler-Mashl, Kathryn	3	3	0
Total	217	181	20

# Degree Field



Acoustics	1
Aerospace Engineering	1
Artificial Intelligence Research	1
Biodetection/Immunosensing	1
Biological Photo Cell/Solar Cell	1
Biology	1
Biology, Chemistry	1
Biomolecular Science & Engineering	2
Biotechnology	1
Chemical Microsensors	1
Chemistry	14
Computer Science	2
Electrical Engineering	4
Experimental Nuclear Physics	1
Inorganic Chemistry	1
Liquid Crystal Materials	1
Marine Meteorology	1
Material Science	5
Mechanical Engineering	2
Mechanics	1
Metal Engineering	1
Mechanical Engineering	2
Marine Meteorology	1
Marine Oceanography	1
Non-Linear Science/Plasma Physics	2
Nearshore Oceanography	1
Optical Science	4
Physics	10
Plasma Physics	1
Polymer Science	1
Radiation Chemistry	1
Solid State Devices	1
Surface Chemistry	1
NQR Detection of Explosives	1

## **Gender Distribution**



**AMERICAN SOCIETY FOR ENGINEERING EDUCATION**

**INTERIM FINANCIAL REPORT  
10/1/93-9/30/98**

**NRL CONTRACT: N00014-94-2-C002  
GRANT PERIOD: 1/1/94-4/30/99  
AMOUNT AUTHORIZED: \$11,337,632  
AMOUNT AVAILABLE: \$9,000,000**

**SEE ACCOUNT # PR03**

	FY94 01-Jan-94 30-Sep-94	FY95 01-Oct-94 30-Sep-95	FY96 01-Oct-95 30-Sep-96	FY97 01-Oct-96 30-Sep-97	FY98 01-Oct-97 30-Sep-98	TOTAL 01-Jan-94 30-Sep-98
<b>ADMINISTRATIVE EXPENSES:</b>						
SALARIES	\$57,883.98	\$62,164.75	\$67,871.22	\$53,767.02	\$49,103.89	\$290,790.86
BENEFITS	17,411.50	24,573.73	25,102.17	19,502.91	17,765.79	104,356.09
POSTAGE	412.81	632.64	1,432.33	1,093.99	1,124.46	4,696.23
MAIL HOUSE POSTAGE	12,700.00	2,975.00	5,086.12	5,700.00	0.00	26,461.12
EXPRESS/COURIER	860.75	1,432.46	1,782.63	1,753.00	1,468.13	7,296.97
TELEPHONE	0.00	0.00	31.41	0.00	0.00	31.41
TOLLS CALLS/FAX	191.72	266.88	276.03	417.62	189.69	1,341.94
ACCOUNTANTS	0.00	0.00	739.00	1,020.00	0.00	1,759.00
COMPUTER CONSULTANTS	50.00	0.00	0.00	0.00	0.00	50.00
OTHER PROF. SERVICES	93.65	7,143.98	5,560.36	4,836.60	5,960.41	23,595.00
SUPPLIES	491.92	907.69	497.27	1,018.52	1,072.87	3,988.27
MACHINE MAINT./RENTAL	5,913.48	601.42	1,170.35	3,151.60	870.20	11,707.05
PRINTING	17,902.00	14,179.75	6,379.00	11,323.75	998.60	50,783.10
PHOTOCOPYING	77.01	309.97	207.84	838.07	176.58	1,609.47
MAIL HOUSE CHARGES	2,657.53	0.00	1,618.92	2,240.00	0.00	6,516.45
MAILING LABELS	3,393.16	75.00	4,174.37	1,444.57	0.00	9,087.10
TRAVEL	816.13	660.20	705.20	1,157.71	1,596.55	4,935.79
COMMITTEE TRAVEL	3,890.86	12,742.13	10,040.58	9,208.02	4,494.30	40,375.89
MEALS/LODGING	587.38	6,794.72	3,215.45	2,860.19	1,338.62	14,796.36
FACILITIES	0.00	0.00	350.00	0.00	0.00	350.00
MEETING EXPENSES	0.00	356.21	52.47	0.00	0.00	408.68
COMMERCIAL ADS	3,061.67	4,104.37	972.50	5,825.97	1,005.00	14,969.51
<b>TOTAL DIRECT EXPENSE</b>	<b>128,395.55</b>	<b>139,920.90</b>	<b>137,265.22</b>	<b>127,159.54</b>	<b>87,165.09</b>	<b>619,906.29</b>
<b>INDIRECT</b>	<b>94,460.61</b>	<b>92,417.75</b>	<b>79,915.81</b>	<b>81,399.27</b>	<b>57,656.22</b>	<b>405,849.66</b>
<b>TOTAL ADMIN. COST</b>	<b>\$222,856.16</b>	<b>\$232,338.65</b>	<b>\$217,181.03</b>	<b>\$208,558.81</b>	<b>\$144,821.31</b>	<b>\$1,025,755.96</b>
	73.57%	66.05%	58.22%	64.01%	66.14%	
<b>PARTICIPANT EXPENSES:</b>						
PARTICIPANT STIPENDS	303,038.46	1,594,523.38	1,350,117.68	1,477,625.40	921,210.15	5,646,515.07
PARTICIPANT TRAVEL	18,633.10	60,894.85	59,886.69	70,920.07	52,019.98	262,354.69
PARTICIPANT RELOCATION	4,423.69	38,136.29	34,142.61	36,380.26	21,823.90	134,906.75
PARTICIPANT INSURANCE	12,799.31	124,780.63	84,615.40	103,686.22	58,917.81	384,799.37
<b>TOTAL PART. COST</b>	<b>\$338,894.56</b>	<b>\$1,818,335.15</b>	<b>\$1,528,762.38</b>	<b>\$1,688,611.95</b>	<b>\$1,053,971.84</b>	<b>6,428,575.88</b>
<b>TOTAL PROGRAM COST</b>	<b>\$561,750.72</b>	<b>\$2,050,673.80</b>	<b>\$1,745,943.41</b>	<b>\$1,897,170.76</b>	<b>\$1,198,793.15</b>	<b>7,454,331.84</b>
<b>CONTRACT FEE @ 2.6%</b>	<b>14,605.52</b>	<b>53,317.52</b>	<b>45,394.53</b>	<b>49,326.44</b>	<b>31,168.62</b>	<b>193,812.63</b>

AMERICAN SOCIETY FOR ENGINEERING EDUCATION

INTERIM FINANCIAL REPORT  
10/1/93-9/30/98

NRL CONTRACT: N00014-94-2-C002  
GRANT PERIOD: 1/1/94-4/30/99  
AMOUNT AUTHORIZED: \$11,337,632  
AMOUNT AVAILABLE: \$8,000,000

SUMMARY OF EXPENDITURES

PROGRAM EXPENSES

FY94 Program	576,356.23
FY95 Program	2,103,991.32
FY96 Program	1,791,337.94
FY97 Program	1,946,497.20
FY98 Program	1,229,961.77
<b>TOTAL EXPENSES</b>	<b>7,648,144.46</b>

PAYMENTS RECEIVED

Voucher #1	1,000,000.00
Return check	(900,000.00)
Voucher #2	88,000.00
Voucher #3	40,000.00
Voucher #4	160,238.89
Voucher #5	185,000.00
Voucher #6	185,000.00
Voucher #7	190,000.00
Voucher #8	800,000.00
Voucher #9	251,761.11
Voucher #10	1,000,000.00
Voucher #11	678,184.00
Voucher #12	200,796.00
Voucher #13	450,000.00
Voucher #14	276,987.85
Voucher #15	394,032.15
Voucher #16	582,403.00
Voucher #17	417,597.00
Voucher #18	515,807.00
Voucher #19	391,000.00
Voucher #20	322,000.00
Voucher #21	455,000.00
<b>TOTAL PAYMENTS RECEIVED</b>	<b>7,683,807.00</b>
<b>TOTAL EXPENSES</b>	<b>7,648,144.46</b>
	35,662.54



NRL-ASEE



## NAVAL RESEARCH LABORATORY

## POSTDOCTORAL FELLOWSHIP PROGRAM

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AMERICAN SOCIETY FOR ENGINEERING EDUCATION

1818 N STREET, N.W., SUITE 600

WASHINGTON, D.C., 20036-2479

PHONE: (202) 331-3525

E-MAIL: [PROJECTS@ASEE.ORG](mailto:PROJECTS@ASEE.ORG)

## GENERAL INFORMATION

### NAVAL RESEARCH LABORATORY

The Naval Research Laboratory (NRL) sponsors a Postdoctoral Fellowship Program. The program is designed to significantly increase the involvement of creative and highly trained scientists and engineers from academia and industry in scientific and technical areas of interest and relevance to the Navy. Scientists and engineers at NRL help shape and execute the Navy's program for meeting the challenge of developing technologies that will support Naval Forces in meeting future operational needs by pursuing scientific research and technological developments to address problems in such diverse fields as: acoustics; hydrodynamics; chemistry; aerodynamics; astrophysics; electronic devices; biotechnology; oceanography; communications, command control and intelligence; computer hardware and software; materials; target detection; weaponry; signal processing; simulation; training; manufacturing; construction; and logistics. The NRL Postdoctoral Fellowship Program provides approximately forty (40) new postdoctoral appointments per year. Fellows are competitively selected on the basis of their overall qualifications and technical proposals addressing specific areas defined by NRL. The selected participants will work in a unique Navy laboratory environment, while interacting with senior NRL scientists and engineers.

This brief flyer presents a summary of administrative policies and procedures for the NRL Postdoctoral Program, and briefly describes the participating host laboratory/center. For the complete application material and to get full details, send requests to: NRL Postdoctoral Fellowship, American Society for Engineering Education, 1818 N Street, NW, Suite 600, Washington, DC 20036; (202) 331-3525, fax (202) 265-8504, or e-mail: projects@asee.org For more information access the ASEE web site: <http://www.asee.org>

#### SELECTION OF PARTICIPANTS

Fellowship awards will be based upon the technical quality and relevance of the proposed research, recommendations by the Navy laboratories or centers, academic qualifications, reference reports, and availability of funds. Selection of Fellows occurs four times per year; applicants who submit completed applications by January 1, April 1, July 1, or October 1, will be notified of awards within 60 days.

#### RESEARCH PROPOSAL

You must contact the research facility at which you are interested in working in order to develop a suitable research proposal. Proposals developed closely with the proposed host facility stand the greatest chance of success in the selection process. The research proposals (five to ten pages) should be prepared addressing a problem of mutual interest to the applicant and to NRL. Since the proposal is a basic component of the application, it should be a concise, well-written statement of the proposed research. For more information on research opportunities, contact the projects office at ASEE.

#### TRANSCRIPTS

Official Transcripts are required for each level (undergraduate, graduate, doctoral) of education. Transcripts should be sent to ASEE projects office.

#### AWARDS

Awards are for one year, and are renewable for a second year and possibly a third year, given satisfactory performance and availability of funds.

DISCIPLINE	BASE	3-5 YEARS	5-7 YEARS
■ Non Shortage Categories	\$36,000	\$38,000	\$40,000
■ Shortage Categories: General Engineer, Safety Engineer, Fire Prevention Engineer, Materials Engineer, Landscape Architect Engineer, Architectural Engineer, Civil Engineer, Environmental Engineer, Mechanical Engineer, Biomedical Engineer, Aerospace Engineer, Naval Architect, Agricultural Engineer, Ceramics Engineer, Chemical Engineer, Welding Engineer, Industrial Engineer, Petroleum Engineer	\$37,000	\$39,000	\$41,000
■ Computer Scientist	\$38,000	\$40,000	\$42,000
■ Nuclear Engineer, Electrical Engineer, Computer Engineer, Electronics Engineer, Engineer (Optics), Physicist (Optics), Medical Officer (Other)	\$39,000	\$41,000	\$43,000

For these listed areas, the base stipend is specified as \$36,000-\$39,000. The stipend is typically raised \$2,000 above the base level for those individuals having three to five years experience beyond the conferral of the doctorate, and \$4,000 above the base for individuals with five or more years relevant experience.

## STIPEND

The base (minimal experience) annual stipend for the first year will be \$36,000, except for higher amounts in the following areas of technical specialization as indicated above.

## INSURANCE

Job-related injury or death will be covered by insurance. A group health insurance program is provided for participants (paid for by the fellowship) and optional for dependents (paid for by participant).

## RELOCATION AND TRAVEL

A travel and relocation allowance will be paid, the amount will be determined by negotiation based on the personal situation of each participant. Funds will be made available for limited professional travel, provided such travel is recommended and approved by NRL and approved by ASEE.

## OBLIGATION TO THE GOVERNMENT

An NRL Postdoctoral Fellow does not incur any formal obligation to the government of the United States. However, the objectives of this program will be best served if the Fellow continues to pursue research or teaching in disciplines meeting the continuing needs of naval technology. Fellows must devote their full time to the approved research program and must be in-residence at the sponsoring laboratory during the entire period of the award. No additional monetary aid or other renumeration may be accepted from another appointment, fellowship, or similar grant during the period of the award.

## PUBLICATION

NRL Fellows are encouraged to publish in open literature. Credit should be given to the Naval Research Laboratory for publications resulting from research conducted at Navy facilities.

## ELIGIBILITY

**CITIZENSHIP:** Participants selected for support under the NRL Postdoctoral Fellowship Program must be citizens of the United States.

**SECURITY CLEARANCE:** Participants must be eligible for a Department of Defense security clearance of "Secret." In most cases, participants will be permitted to do research pending completion of the security clearance. All appointments are contingent upon Fellows obtaining the appropriate level of security clearance.

**EDUCATION AND EXPERIENCE:** Before appointment, participants must present evidence of having received the Ph.D., Sc.D., or other earned research doctoral degree recognized in U.S. academic circles as equivalent to the Ph.D. within seven years of the date of application, or must present acceptable evidence of having completed all formal academic requirements for one of these degrees.

**PRIOR FELLOWSHIPS:** A person who has received a prior postdoctoral appointment at a navy laboratory under any program may not be eligible to participate in the NRL Postdoctoral Program.

**EQUAL OPPORTUNITY:** In accordance with Federal statutes and regulations and Navy Policies, no person on the grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, denied the benefits of, or be subject to discrimination under, any program or activity receiving financial assistance from the U.S. Navy.

## PROGRAM PARTICIPANT

### NAVAL RESEARCH LABORATORY

Washington, DC, Stennis Space Center, MS, and Monterey, CA

As the corporate research laboratory of the Navy, the Naval Research Laboratory (NRL) conducts a broadly based multidisciplinary program of scientific research in advanced technological development, techniques, systems and related operational procedures. NRL is one of the largest scientific institutions within the U.S. Government.

Established in 1923, the Laboratory still occupies its original site of the Potomac River in Washington, DC. Additional facilities are located at Stennis Space Center, MS; Monterey, CA; and other support facilities and field-experiment sites throughout Maryland and Virginia.

Current research interests focus on such areas as computer science, artificial intelligence, plasma physics, acoustics, radar, fluid dynamics, chemistry, materials science, optical sciences, condensed matter and radiation sciences, electronics science, environmental sciences, marine geosciences, remote sensing, oceanography, marine meteorology, space technology and space sciences. Facilities include: a Connection Machine computer, a high-power gyrotron laboratory; a large-aperture, high resolution towed ther-

mistor chain; a 4-TW accelerator; a 60-MeV Linac; a 3-MV tandem Van de Graaff; versatile facilities for high-magnetic-field and cryogenics research; light-gas combustion studies; extensive facilities for studying mechanical properties of anechoic chambers; a microelectronics facilities; MBE facilities; extensive fire research facilities; a combined wave and wind channel; a physical acoustic center; state-of-the-art deep ocean and shallow water instrumentation; oceanographic equipment for optical measurements; geophysical/acoustic deep-towed measurement system; a new geosciences magnetic observatory; aircraft-mounted multispectral scanner; electromagnetic sensor system; and experimental satellite development and test facilities.

NRL has a continuing need for scientists and engineers in many fields of research. For this reason, NRL conducts postdoctoral fellowship programs, whose objectives are (1) to provide postdoctoral scientists and engineers of unusual promise and ability the opportunity for research on problems that are compatible with the interest of the Navy, and (2) to contribute to the overall efforts of NRL by the stimulus offered to research programs by the presence of bright, highly motivated, recent doctoral graduates.

# THE OFFICE OF NAVAL RESEARCH POSTDOCTORAL FELLOWSHIP PROGRAM & THE NAVAL RESEARCH LABORATORY POSTDOCTORAL FELLOWSHIP PROGRAM

ADMINISTERED BY THE AMERICAN SOCIETY FOR ENGINEERING EDUCATION



The U.S. Navy sponsors Postdoctoral Fellowship Programs at a number of Naval R&D centers and laboratories. The Naval Research Laboratory (NRL) Postdoctoral Fellowship Program and Office of Naval Research (ONR) Postdoctoral Fellowship Program are designed to significantly increase the involvement of creative and highly trained scientists and engineers from academia and industry in scientific and technical areas of interest and relevance to the Navy. Scientists and engineers at Navy R&D centers and laboratories help shape and execute the Navy's program for meeting the challenge of developing technologies that will support Naval Forces in meeting future operational needs.

Through these programs, the Navy is strongly pursuing scientific research and technological developments in such diverse fields as: *acoustics; hydrodynamics; aerodynamics; astrophysics; electronic devices; biotechnology; oceanography; communications; command control and intelligence; computer hardware and software; materials; target detection; weaponry; signal processing; simulation; biomedicine; training; manufacturing; construction; and logistics.*

## Eligibility and Application

Before appointment, each participant must present evidence of having received a Ph.D., Sc.D., or other earned research doctoral degree recognized in U.S. academic circles as equivalent to a Ph.D. The applicant must submit a research proposal to the Navy laboratory that relates to a specific research opportunity. A proposal must be the original work of the applicant and sponsored by an Advisor at a Navy laboratory. Before writing a proposal, an applicant is advised to communicate directly with the Advisor, who can provide more specific information on the current research and available technical facilities and offer scientific support of proposal development. Each applicant's proposal must be approved by the proposed Advisor and Department Director.

## Selection of Participants and Terms of Appointment

Fellows are competitively selected on the basis of their overall qualifications and technical proposal addressing specific areas defined by the Navy laboratory. The selected participants will work in a unique Navy laboratory environment while interacting with senior Navy scientists and engineers. ASEE will hold reviews of applicants to the Fellowship Program on a quarterly basis. Fellowships are awarded for one year and may be extended to a second and third year. Applicants are advised to plan their research programs to conform to a one-year appointment. The application deadlines are January 1, April 1, July 1, and October 1.

FOR APPLICATION MATERIAL AND DETAIL INFORMATION CONTACT:  
ONR/NRL Postdoctoral Fellowship Program  
American Society for Engineering Education (ASEE)  
1818 N Street, NW, Suite 600  
Washington, DC 20036  
(202) 331-3525 projects@asee.org

### Participating Laboratories

#### NAVAL RESEARCH LABORATORY POSTDOCTORAL FELLOWSHIP PROGRAM



Naval Research Laboratory (NRL)  
Washington, D.C.

Stennis Space Center, MS  
Monterey, CA

#### OFFICE OF NAVAL RESEARCH POSTDOCTORAL FELLOWSHIP PROGRAM

Naval Air Warfare Center (NAWC)  
Naval Command, Control and Ocean Surveillance  
Center RDT&E (NraD)  
Naval Surface Warfare Center (NSWC)  
Naval Undersea Warfare Center (NUWC)  
Naval Medical Research and Development Command  
(NMRDC)

Naval Medical Research Institute (NMRI)  
NMRI's Toxicology Detachment (NMRI TOX DET)  
Naval Health Research Center (NHRC)  
Naval Aerospace Medical Research Laboratory  
(NAMRL)  
Naval Biodynamics Laboratory (NBDL)

Naval Submarine Medical Research Laboratory  
(NSMRL)  
Naval Facilities Engineering Service Center (NFESC)  
Navy Personnel Research and Development Center  
(NPRDC)  
Naval Postgraduate School (NPS)  
United States Naval Academy (USNA)

**Naval Research Laboratory**  
**POSTDOCTORAL FELLOWSHIP PROGRAM**

Administered by the AMERICAN SOCIETY FOR ENGINEERING EDUCATION

**LABORATORY EVALUATION**

Due Date: May 6, 1995

**Name of Applicant:**

Harry Warren

**Research Field:**

**Address:**

77 Indian Harbor Drive  
Greenwich, CT 06830

**Laboratory:**

NRL

4555 Overlook Ave NW  
Washington, DC 20375-4370

**Advisor:** Dr. Judith Lean

Title of Research Proposal:

"Physics-Based Modeling of Solar EUV and Soft X-ray Irradiance Variability"

To be filled out by the proposed advisor:

1. Please comment on the following:

A. Applicant's understanding of the problem. Is the approach technically feasible, etc.?

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B. Soundness of proposal. Is the approach reasonable?

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C. Originality of the proposed research.

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2. Is the necessary equipment and instrumentation to conduct the applicant's research available?

\_\_\_\_\_ Yes \_\_\_\_\_ No

If no, can it be acquired within the reasonable time? \_\_\_\_\_

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3. What is the relevance of the research to the Navy?

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4. Advisor's additional comments. (Optional)

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Harry Warren's stipend is \$36,000.

- Laboratory funding available
- Recommended for consideration by ASEE
- Not recommended for consideration by ASEE

Navy Advisor's Signature \_\_\_\_\_ Date \_\_\_\_\_

Department Head's Signature \_\_\_\_\_ Date \_\_\_\_\_

Laboratory Technical Director's  
(or Designate's) Signature \_\_\_\_\_ Date \_\_\_\_\_

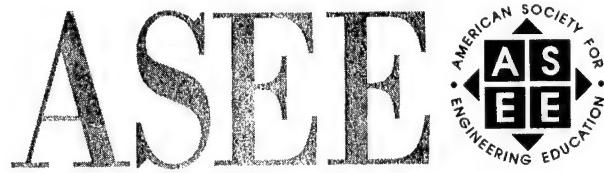
Program Coordinator's Signature \_\_\_\_\_ Date \_\_\_\_\_

Management Comments:

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## American Society for Engineering Education

January 10, 1995

Dr. Harry Warren  
77 Indian Harbor Drive  
Greenwich, CT 06830

Dear Dr. Harry Warren,

Your application to the Postdoctoral Fellowship Program, sponsored by the NRL and administered by the American Society for Engineering Education, has been received.

The processing of your application has begun with a request for information being sent to the Navy laboratory in which your proposed research project will be conducted. If any additional information is needed, we will contact you.

Please do not hesitate to contact me at (202) 331-3509 if you have any other questions or need any assistance.

Sincerely,

Andrew Scherer  
Program Assistant  
Projects Office

1818 N Street, N.W.  
Suite 600  
Washington, D.C. 20036  
Main (202) 331-3500  
Fax (202) 265-8504



**EVALUATION FORM**  
for the  
**ONR POSTDOCTORAL FELLOWSHIP PROGRAM**  
*(see instruction sheet)*

APPLICANT: Harry Warren

DUE DATE: February 30, 1995

PROPOSAL TITLE: "Observation of Chaotic Particle Transport Driven by Drift-Resonant Fluctuations in the Collisionless Terella Experiment"

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**PLEASE COMMENT IN THE SPACE PROVIDED. ADDITIONAL PAGES CAN BE USED IF NECESSARY.**

Educational Background:

Score: [ ]

Strength of References:

Score [ ]

Professional Research Experience:

Score [ ]

Research Productivity:

Score [ ]

Sponsor's Endorsement: Score [ ]

Sponsor's Capabilities Relative to the Proposed Research: Score [ ]

Quality and Effectiveness of the Research Proposal: Score [ ]

Additional Comments:

**A. Conflict of Interest**

I certify that I am not aware of any matter which might reduce my ability to participate in the Office of Naval Research Postdoctoral Fellowship Program evaluation process in an objective and unbiased manner or which might place me in a position of conflict, real or apparent, between my responsibilities as a Field Reviewer and other interests.

**B. Confidentiality**

I certify that I will not disclose, except pursuant to the order of a court of competent jurisdiction, either during the evaluation or at any subsequent time, any information concerning the evaluation, to anyone who is not also authorized access to the information to the extent that such information is required in connection with such person's official responsibilities. I will not disclose or adopt ideas in the candidate's proposal or any other information submitted by the applicant except to persons such as the applicant's proposed advisor or references who are familiar with the information in conjunction with the ONR/ASEE Postdoctoral Fellowship program.

**C. Field Reviewer Comments**

[ ] My preparation of this Evaluation Form is conditioned on the promise that ASEE and ONR hold my identity as the author of these comments in confidence.

[ ] My preparation of this Evaluation Form is not conditioned on the promise that ASEE and ONR hold my identity as the author of these comments in confidence.

*Before signing this report, you should check one of the two blocks above. If you wish to have your comments held in confidence, so as not to reveal your identity as the author of this comments, you should check the first block. If the first block is checked, ASEE and ONR will honor your request to the extent permitted by law. If you fail to check either block, your comments will be treated as confidential. However, you are warned that your failure to check the first block may result in a requirement to provide your comments to the applicant under the Privacy Act of 1974.*

This recommendation will be given to ASEE's Advisory Committee for final approval and recommendation to the Office of Naval Research. Please check your recommendation and total the score on the appropriate box.

RECOMMENDED [ ] NOT RECOMMENDED [ ]

TOTAL SCORE [ ]

Field Reviewer's Name \_\_\_\_\_  
(Type or Print)

Signature \_\_\_\_\_ Date \_\_\_\_\_

# ASEE



## American Society for Engineering Education

March 6, 1995

Harry Warren  
77 Indian Harbor Drive  
Greenwich, CT 06830

Dear Mr. Warren:

The American Society for Engineering Education (ASEE) is pleased to confirm your appointment to a one-year Postdoctoral Fellowship at the Naval Research Laboratory, Washington, DC, beginning on or about May 1, 1995 (you must start within 60 days from the date to which you've agreed or the appointment will become void). Your research advisor at the laboratory will be Dr. Judith Lean.

Under the terms of the appointment, you will receive \$36,000, divided into thirteen (13) payments. Mrs. Lesley Renfro, ASEE/NRL Program Coordinator at NRL will have a check for \$2,769.23 (less the amount withheld for medical insurance for your dependents, if applicable) the day you arrive at the laboratory. The twelve additional stipend checks will be issued on the last working day of each month. ASEE will arrange for the direct deposit of your checks. Enclosed is an authorization form which you must complete and return to this office in order to initiate the process.

Please read the enclosed **Terms and Conditions** carefully, sign one copy and return it to this office, and keep one for your files. Special note should be taken of items related to travel, relocation, group medical, life and disability insurance (insurance forms and materials are enclosed herewith), and security clearance. These items require action by you prior to reporting to the laboratory. Please also note that as an NRL/ASEE Postdoctoral Fellow, you are not an employee of ASEE nor are you an employee of NRL. Fellows are considered self-employed, guest researchers at NRL.

Please read the enclosed memorandum concerning your tax status. **You are considered a self-employed, guest-researcher and are responsible for any and all federal, state and local tax liability.**

Should any patents or inventions result from your research, notification should be made to the proper laboratory personnel. A memorandum concerning patents, innovations and inventions is enclosed.

1818 N Street, N.W.  
Suite 600  
Washington, D.C. 20036  
Main (202) 331-3500  
Fax (202) 265-8504

You must also furnish this office with official verification that you have completed all academic requirements for your doctoral degree (if degree has not yet been formally conferred). You may not begin work at the laboratory until said form is on file at ASEE. (A faxed copy is acceptable until a formal letter is made available.)

Mrs. Renfro is the Program Coordinator at the laboratory and should be contacted concerning any questions about where to report. She can be reached at (202) 404-7450. Any questions concerning your appointment or financial matters should be directed to me at the ASEE Projects Office. Please feel free to contact me at (202) 331-3517 if I can be of further assistance.

Sincerely,



Andrew Scherer  
Program Manager  
Projects Office

Enclosures:      **Terms and Conditions** (two copies)  
Postdoctoral Fellowship Annual Report  
Tax Status Memorandum  
Patents Memorandum  
Direct Deposit Authorization  
Reimbursement Forms (two copies)  
Insurance Information Packet

cc: Mrs. Lesley Renfro, NRL

## **NRL POSTDOCTORAL FELLOWSHIP PROGRAM**

Administered by the  
American Society for Engineering Education  
for the  
Naval Research Laboratory

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### **TERMS AND CONDITIONS**

The Naval Research Laboratory (NRL) sponsors a Postdoctoral Fellowship Program which is intended to provide highly trained scientists and engineers an opportunity to spend time at a Navy laboratory or center conducting full-time research of mutual interest to themselves and to the Navy.

#### **1. Period of the Fellowship**

Fellowships are for a specified period of time as noted in the award letter. Any change in these dates must be concurred with the NRL and the ASEE Projects Office. Awards are renewable for a second year. At the discretion of the laboratory, third-year appointments may be arranged if warranted.

#### **2. Stipends**

Annual stipends will be paid in thirteen (13) installments beginning on the Fellow's reporting date for the first year based on the annual stipend listed in the award letter. Subsequent year stipends will be paid in twelve (12) installments. ASEE will "direct deposit" stipend checks.

#### **3. Travel to Research Site**

Travel and relocation expenses to the designated research site will be paid for the Fellow. Travel forms are attached to this document to claim reimbursement for your travel expenses; original receipts must be attached as supporting evidence. If necessary, a travel and relocation advance can be provided upon request (advances should be requested at least thirty (30) working days before the departure date). Travel will be based on the most economical airfare from the airport nearest your current residence to the airport nearest your research site, cost of taxi or limousine (rental car may be approved if taxi and limousine service is not readily available) and meals and lodging not to exceed \$100 per day for not more than seven (7) days. If you drive your personal car to the research site, you will be reimbursed for one car at the rate of twenty-eight (\$0.28) per mile up to a total not to exceed the most economical airfare available at the time. The added cost of food and lodging while on the road cannot be covered.

#### **4. Relocation Expenses**

A reasonable expense for relocation of your household goods from and return to your current address to the research site will be allowed. Three (3) estimates must be obtained and submitted to the ASEE Projects Office for approval. A rental trailer or truck may be used if desired when there is a small amount of household goods. Complete and original receipts for rentals or carriers must be submitted to the ASEE Projects Office for reimbursement.

**5. Travel and Relocation Expenses at Termination of Fellowship**

Upon completion of the Fellowship, travel and relocation expenses will be allowed not to exceed the cost of the original travel and relocation expenses for reporting to the research site. All claims for termination travel and relocation must be submitted within one hundred twenty (120) days of termination or they will be disallowed.

**6. Travel During Fellowship**

A limited amount of funds is available for travel to professional meetings related to the professional development of the Fellow. Travel must be approved by both NRL and the ASEE Projects Office. Foreign travel must be approved by the participant's advisor and by the ASEE prior to the trip. (Travel advances sought under this section should be requested in writing at least thirty (30) working days before the advance is required.)

**7. Security Clearance**

Participants must be eligible for a Department of Defense (DoD) security clearance of "Secret." In most cases, participants will be permitted to do research pending completion of the security clearance. NRL will be responsible for obtaining this clearance and will contact the Fellow to complete the necessary forms. All appointments are contingent upon the Fellow obtaining the appropriate level of security clearance.

**8. Citizenship**

Individuals selected for support must be citizens of the United States.

**9. Medical Insurance**

During the period of the Fellowship, and contingent upon insurability, ASEE will provide the participant's health insurance (hospitalization, major medical and dental). Coverage for dependents is the responsibility of the Fellow, and such coverage will not be paid for by ASEE. Details and the necessary applications have been included under separate cover.

**10. Life Insurance**

During the period of the Fellowship, and contingent upon insurability, ASEE will provide for a \$50,000 term-life insurance policy on each Fellow. Discounted permanent insurance will be offered as an optional benefit to be paid for by the Fellow. Details and the necessary applications have been included under separate cover.

**11. Disability**

During the period of the Fellowship, and contingent upon insurability, ASEE will provide the participant's disability insurance. This is to insure that a significant portion of the Fellowship will be paid in the event of disability. Details have been included under separate cover.

#### 12. Obligation to the Government

This Postdoctoral Fellowship does not incur any formal obligation to the Government of the United States. However, the objectives of this program will be served best if the Fellow continues to pursue research or teaching in disciplines to meet the continuing needs of naval technology. Fellows must devote their full time to the approved research programs and must be in-residence at NRL during the entire period of their award. No additional monetary aid or other remunerations may be accepted from another appointment, fellowship, part-time teaching, research or other outside work.

#### 13. Taxes

Fellows are not employees of ASEE nor are they employees of NRL, consequently, Fellows are not accruing credits for unemployment compensation. Fellows are considered to be self-employed, guest researchers at NRL. Therefore, all arrangements for payment of federal, state and local income taxes are the responsibility of the individual Fellow. By January 31 the ASEE Business Office will furnish each Fellow with a statement of earnings (IRS Form 1099) for the preceding calendar year. Total earnings include monthly stipends, monies spent on insurance coverage (health, life and disability), travel and relocation costs.

#### 14. Time and Attendance

It is expected the Fellows will work full-time according to the work schedule of NRL. As self-employed guest researchers, Fellows are responsible for their time and attendance at NRL. Failure to adhere to a reasonable work schedule may result in termination of the Fellowship.

#### 15. Patents, Inventions and Innovations

Persons selected to participate as Fellows in the NRL Postdoctoral Fellowship Program are required to comply with the provisions of the "Patent Rights--Acquisition by the Government (June 1989)" clause of the Federal Acquisition Regulation (FAR), Part 52.227-13.

Fellows are required, in accordance with the Patent Rights clause, to report any invention made, i.e. conceived or actually reduced to practice, during the period covered by their performance in the Fellowship Program. Invention means any discovery or innovation that may be patented or otherwise protected under the U.S. patent laws.

Any invention, as defined hereinabove, is to be reported to the Intellectual Property (IP) Counsel's Office located at NRL. If NRL has no assigned Intellectual Property Counsel Office, then the invention is to be reported to the Senior Patent Attorney at the Office of the Chief of Naval Research, Code 00CC1, 800 North Quincy Street, Arlington, Virginia 22217-5000.

At the conclusion of the period of performance under the Fellowship Program, each Fellow is required to provide an abstract to ASEE, listing all inventions made and/or reported during the performance period, or stating that there were none.

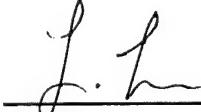
#### 16. Publications

The participants are encouraged to publish in the open literature. Credit should be given to the Naval Research

Laboratory for publications resulting from research conducted there. The Fellow will conform to the review procedures of NRL for all material for written or oral publication.

**17. Reporting Requirements.**

- o **Progress Reports.** Progress reports are required semi-annually -- beginning on the date the Fellow reports to the center or laboratory -- and are due within fifteen (15) calendar days after the end of the reporting period. Progress reports should be submitted to the ASEE Projects Office which, in turn, submits the reports to NRL. Reports not submitted in accordance with this deadline will be considered delinquent, and the Fellow's stipend and request for reimbursement may be withheld at any time thereafter until the report is received by the ASEE Projects Office. It will be the Fellow's sole responsibility to see that these reports reach the ASEE Projects Office before the deadline, since the ASEE Projects Office is not required to notify the Fellow of an overdue report and receipt of the progress reports.
- o **Postdoctoral Fellowship Annual Report.** On October 1 of each year and at the end of the fellowship period a Postdoctoral Fellowship Annual Report is required.
- o **Final Technical Report.** A final technical report is required at the end of the Fellowship period and will be due before issuance of the final stipend check to the Fellow. The final report should cover the entire period of the fellowship in detail.

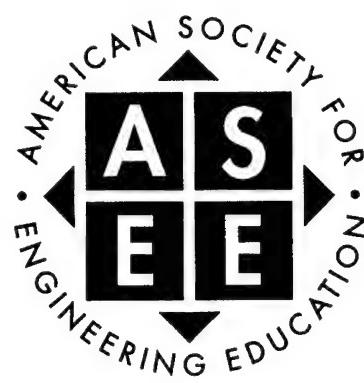
  
\_\_\_\_\_  
Tim Turner  
Manager of Projects, ASEE

3/8/95  
\_\_\_\_\_  
Date

I ACCEPT THE NRL POSTDOCTORAL FELLOWSHIP UNDER THE TERMS AND CONDITIONS LISTED ABOVE.

Harry Paul Warren  
\_\_\_\_\_  
Fellow's Name (Type or Print)  
  
  
\_\_\_\_\_  
Signature

March 20, 1995  
\_\_\_\_\_  
Date



## **POSTDOCTORAL FELLOWSHIP FINAL REPORT**

**Due:** At the end of tenure (must be received before issuance of final stipend check)

The Postdoctoral Fellowship Final Report should include, but not be limited to, the items listed below in order both to be consistent and to succinctly indicate the scientific merit. This Research summary will be included by ASEE in the annual report to your laboratory on the accomplishment of the fellows to show how the results fit into the laboratory's mission.

**Title:** Use a short, clear, descriptive title.

**Fellow:** Name, dates of appointment and discipline. Also include forwarding address and new employer.

**Advisor:** Identify the Advisor and Branch. (Include a point of contact in case questions arise during preparation of the annual report by ASEE)

**International Posts/Travel:** International assignments held during tenure and any professional or programmatic travel.

**Lectures:** Seminars or lectures delivered during this period.

**Patents/Publications:** List patents applied for or papers and publications resulting from research.

**Research:** Describe the research done during the period in concise, descriptive terms. Technical issues resolved or barriers overcome in carrying out the work may be included here. It is also necessary to provide substantive and specific details of the research. Indicate how the research supports a specific Navy program.

**Research Objective & Impact:** Describe the Navy problem the project addressed for which a solution was needed and explain the impact the research had on the project's goal.



## POSTDOCTORAL FELLOWSHIP SEMI-ANNUAL PROGRESS REPORTS

**Due:** Every six months.

The Postdoctoral Fellowship Semi-Annual Report should include the items listed below in order both to be consistent and to succinctly indicate the scientific merit. This Research summary will be included by ASEE in the annual report to your laboratory on the accomplishment of the fellows to show how the results fit into the laboratory's mission. **Total length of the written material should not exceed one page.**

**Title:** Use a short, clear, descriptive title.

**Fellow:** Name, dates of appointment, research area.

**Advisor:** Identify the advisor, division and organizational code. (Include a point of contact in case questions arise during preparation of the annual report by ASEE)

**Research Objective:** Describe the Navy problem the project addressed for which a solution is needed.

**Findings/Accomplishment:** Describe the progress during the previous six months in concise, descriptive terms. Technical issues resolved or barriers overcome in carrying out the work may be included here. It is also appropriate to complete the paragraph by providing a transition statement with substantive and specific details.

**Projected Impact:** Indicate how the research supports a specific Navy program.



## American Society for Engineering Education

### MEMORANDUM

To: Participants in the Postdoctoral Fellowship Program  
From: American Society for Engineering Education  
Subject: Patents, Inventions, and Innovations

1. Persons selected to participate as Fellows in the Postdoctoral Fellowship Program are required to comply with the provisions of the "Patent Rights--Acquisition by the Government (June 1989)" clause of the Federal Acquisition Regulation (FAR), Part 52.227-13, and are considered subcontractors to the American Society for Engineering Education (for patent purposes only).
2. Fellows are required, in accordance with the Patent Rights clause to report any invention made, i.e., conceived or actually reduced to practice, during the period covered by their performance in the Fellowship Program. Invention means any discovery or innovation that may be patented or otherwise protected under the U.S. patent laws.
3. Any invention, as defined herein, is to be reported to the Intellectual Property (IP) Counsel's Officer located at the host laboratory. If the host laboratory has no assigned Intellectual Property Counsel Office, then the invention is to be reported to the Senior Patent Attorney at the Office of the Chief of Naval Research, Code OOCC1, 800 North Quincy Street, Arlington, VA 22217-5000.
4. At the conclusion of the period of performance under the Fellowship Program, each Fellow is required to provide an abstract to ASEE, listing all inventions made and/or reported during the performance period, or stating that there were none. For convenience, the enclosed form may be used in reporting inventions to ASEE.

1818 N Street, N.W.  
Suite 600  
Washington, D.C. 20036  
Main (202) 331-3500  
Fax (202) 265-8504



## American Society for Engineering Education

### MEMORANDUM

To: ASEE  
From: Participating Postdoctoral Fellow  
Subject: Patents, Inventions and Innovations

1. Pursuant to the "Patent Rights--Acquisition by the Government (June 1989)" clause of the FAR Part 52.227-13 and the "Memorandum to Participants in the Postdoctoral Fellowship Program," the following inventions were made and reported during the period of my appointment to work at the \_\_\_\_\_.  
(Navy Laboratory)

<u>Invention Title</u>	<u>Inventor(s)</u>	<u>Date of Disclosure to IP Office</u>
a.		
b.		
c.		

2. No inventions were made.

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Name (Please Print)

---

Signature and Date

1818 N Street, N.W.  
Suite 600  
Washington, D.C. 20036  
Main (202) 331-3500  
Fax (202) 265-8504

**AMERICAN SOCIETY FOR ENGINEERING EDUCATION**

**POSTDOCTORAL FELLOWSHIP PROGRAM**

**AUTHORIZATION AGREEMENT FOR DIRECT DEPOSIT**

I hereby authorize the American Society for Engineering Education, hereinafter called company to initiate credit entries to my account indicated below and the depository named below, hereinafter called depository, to credit the same such account, and, in the event a credit is made to my account in error, I authorize company to make a correcting entry under the condition that I am notified of said adjustment.

ACCOUNT NUMBER: \_\_\_\_\_ CHECKING  SAVINGS

DEPOSITORY: \_\_\_\_\_  
\_\_\_\_\_

BANKING TRANSIT NUMBER: \_\_\_\_\_ (Always 9 Digits)

This authorization is to remain in full force and effect until company has received written notification from me of its termination in such time and in such manner as to afford company a reasonable opportunity to act on it.

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

FELLOW'S NAME: \_\_\_\_\_

NOTE: Please include a copy of a void check or deposit slip and return this form to Noah Weiss,  
Program Manager.

ASEE  
1818 N Street NW, Suite 600  
WASHINGTON DC 20036

PHONE (202) 331-3509  
FAX (202) 265-8504

**AMERICAN SOCIETY FOR ENGINEERING EDUCATION**

**POSTDOCTORAL FELLOWSHIP PROGRAM**

**AUTHORIZATION AGREEMENT FOR DIRECT DEPOSIT**

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ACCOUNT NUMBER: \_\_\_\_\_ CHECKING  SAVINGS

DEPOSITORY: \_\_\_\_\_  
\_\_\_\_\_

BANKING TRANSIT NUMBER: \_\_\_\_\_ (Always 9 Digits)

This authorization is to remain in full force and effect until company has received written notification from me of its termination in such time and in such manner as to afford company a reasonable opportunity to act on it.

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

FELLOW'S NAME: \_\_\_\_\_

NOTE: Please include a copy of a void check or deposit slip and return this form to Noah Weiss,  
Program Manager.

ASEE  
1818 N Street NW, Suite 600  
WASHINGTON DC 20036

PHONE (202) 331-3509  
FAX (202) 265-8504

**American Society for Engineering Education**  
1818 N Street, NW, Suite 600, Washington, DC 20036 (Attn: Noah Weiss)

**REQUEST FOR REIMBURSEMENT OF POSTDOCTORAL  
FELLOWSHIP TRAVEL EXPENSES**

To be submitted no later than thirty days (30) after traveling. Receipts must be provided for all reimbursement claims.

**NAME (Type or Print)** \_\_\_\_\_

**ADDRESS (Mail check to)** \_\_\_\_\_

**INCLUSIVE DATES: FROM** \_\_\_\_\_ **TO** \_\_\_\_\_  
**FROM** \_\_\_\_\_ **TO** \_\_\_\_\_ **TO** \_\_\_\_\_  
(Location) (Location) (Location)

**TRANSPORTATION AND OTHER EXPENSES:**

1. Local transportation (taxi, etc. - include receipts) \$ \_\_\_\_\_
2. Actual auto mileage (.32 cents per mile) \$ \_\_\_\_\_
3. Airport parking (include receipts) \$ \_\_\_\_\_
4. Airline ticket (must be pre-approved) \$ \_\_\_\_\_
5. Other Expenses (conference registration, etc.) \$ \_\_\_\_\_  
(Please specify type of expense including receipts)
6. **Total (1 thru 5)** \$ \_\_\_\_\_

**CERTIFICATION:** I certify that this report is true and accurate to the best of my knowledge.

Fellow's Signature

Date

Advisor's Signature

Date

**FOR ASEE HEADQUARTERS USE ONLY**

**PER DIEM:** This per diem rate is based on government rates published by the General Services Administration in the Federal Travel Regulations (41 CFR, Chapter 301). Please provide hotel bill with this form.

7. Hotel Accommodations: \_\_\_\_\_ X \_\_\_\_\_ \$ \_\_\_\_\_  
(Reimbursable per diem) (# of nights)
8. Meals: \_\_\_\_\_ X \_\_\_\_\_ \$ \_\_\_\_\_  
(M&IE per diem) (# of days)
9. **TOTAL (6 thru 8)** \$ \_\_\_\_\_

Approved for payment on \_\_\_\_\_ by \_\_\_\_\_ Charge to Account \_\_\_\_\_

# **ASEE TRAVEL EXPENSE REIMBURSEMENT POLICY**

## **POSTDOCTORAL FELLOWSHIP PROGRAM**

### **General Policy**

As a professional society, the basic principle of ASEE is that the fellow who participates in various activities will do so voluntarily as a part of their professional growth and contributes to the advancement of engineering education through the ASEE/ONR Postdoctoral Fellowship. Reimbursement from ASEE funds will be for pre-approved expenses incurred when traveling on official ASEE/ONR business. No expenses for travel will be reimbursed unless a pre-approved Travel Authorization is issued by the ASEE Project Manager. Travel will be approved by the fellow's advisor, ONR Fellowship Coordinator and ASEE Program Manager before travel.

### **Specific Guidelines**

The use of ASEE's official travel agency is required for all travel for which ASEE reimbursement is desired, except when the Executive Director or President determines that there is a financial advantage to ASEE to do otherwise. Failure to adhere to this policy will result in a denial of a claim for reimbursement from ASEE.

#### **1. Transportation**

ASEE will be billed directly for the actual cost of transportation. The fellow is responsible for submitting a completed TRAVEL AUTHORIZATION FORM in sufficient time to be ticketed at least seven (7) days in advance. Upon approval of the travel request, the official travel agency will be notified and the traveler will then be authorized to make specific reservations through the agency. The tickets will then be purchased by ASEE and forwarded to the fellow. **ASEE will not reimburse for transportation if arrangements are made independently of the travel agency indicated by ASEE.**

(a) ASEE authorizes coach class commercial air transportation only when travel by a discount class is not available or would impose undue hardship on the traveler. If the traveler elects to fly coach or a more premium class without ASEE authorization, ASEE will pay only that portion of the total cost equal to the lowest available discount fare. Where the traveller elects and is pre-approved to use a private automobile to make airline connection, ASEE will reimburse both the mileage to the airport and airport parking. Receipts for parking expenses should accompany the REQUEST FOR REIMBURSEMENT OF TRAVEL EXPENSES FORM.

(b) When travel by private automobile is elected and pre-approved, total reimbursement for lodging, meals, tolls, parking and mileage is not to exceed the cost of the most economical class commercial air transportation reasonably available. Mileage reimbursement is calculated according to the rate authorized by the I.R.S. The milage rate is inclusive of all expenses incurred during the automobile travel (lodging, tolls, gasoline, meals, parking).

(c) Reimbursement for cost of a rental automobile will be made only in those pre-approved cases justified by the nature of business of the traveler at the destination, or where other means of reaching the ultimate destination are not feasible.

#### **2. Out of pocket Expenses**

Payment of a fixed daily allowance for lodging and meals actually paid for by the traveler shall be made according to a per diem rate for the locality. This per diem rate will be the same as the government rates published by the General Services Administration in the Federal Travel Regulations (41 CFR, Chapter 301). Upon receipt and approval of the TRAVEL AUTHORIZATION FORM, the traveler will be notified of the lodging per diem rate pertaining to the specific destination and given a total amount of reimbursement allowed (based on the number of hotel nights paid for at the destination). Exceptions to the maximum lodging rate may be considered. **Receipts for lodging are required in order to receive the lodging per diem.** The traveler must also specify the meals personally paid for during travel. The meals per diem will be the high-rate government meals per diem. Reimbursement for local transportation within the area of travel requires receipts (amounts in excess of \$25.00), which must accompany the REQUEST FOR REIMBURSEMENT OF TRAVEL EXPENSES FORM.

#### **3. Other - itemized**

Registration fees and other justified costs will be reimbursed when pre-approved and itemized.



## American Society for Engineering Education

To: Postdoctoral Fellow  
From: Sandi Crawford, Program Manager  
Re: Insurance Plan

### **ASEE POSTDOCTORAL FELLOWSHIP HEALTH AND LIFE INSURANCE PLAN**

We have arranged for a comprehensive group health insurance program for you underwritten by the American Society for Engineering Education and administered by EBP. For those on tenure in the greater Washington metro area, you will have the option of choosing a preferred provider from EBP or a non-network provider. For those who are outside of the Alliance Network region (Washington, DC, Virginia and Maryland), you will have the choice of using the EBP Network of doctors or a non-network provider. The health insurance coverage includes major medical, dental and prescription drug. Your coverage will be effective on your date of hire.

A plan booklet explaining the coverage of the insurance plan is enclosed along with a summary of benefits, enrollment form, most commonly asked questions flyer, and if applicable, an Guardian Provider Directory. To choose a participating Beech Street provider, you may call the toll-free referral line at 800-432-1776. You will receive an insurance card for you and any eligible family members you wish to insure. This card is used for both health insurance and prescriptions. The additional monthly cost to cover any family member will depend on many factors, please contact ASEE. If you wish this coverage, the cost will be deducted each month from your stipend check. If you do not insure eligible family members now and wish to add them at a later date, evidence of insurability will be required. If you have any questions, you may contact EBP at 800-633-4226.

Life Insurance is provided at no extra cost by Guardian. This Life Insurance Policy is worth 1 and ½ times your annual earnings to a maximum of \$100,000. An Accidental Death and Dismemberment benefit to match the Life Insurance is also included. These benefits are outlined in the Disability and Life Insurance Analysis that is enclosed. If you have any questions, you may contact Guardian Life Insurance Company of America at 800-638-7747.

Enclosed is the Health and Life Insurance Enrollment form. Please fill out the appropriate information according to which plan(s) you choose. Be sure to complete the information at the bottom of the form showing which plans you accept and/or decline. Please return this to the ASEE Projects Office as soon as possible. You must complete this form and return it to ASEE regardless of whether or not you choose to enroll in these programs.

Also enclosed is a brochure concerning additional benefit plans available through Guardian. To receive further information on any of these plans, please fill out the perforated card and return it to ASEE.

1818 N Street, N.W.  
Suite 600  
Washington, D.C. 20036  
Main (202) 331-3500  
Fax (202) 265-8504



Employee name (last name, first name, middle initial)

Employee address (street)

Employee address (city, state, zip code)

Social Security number

**1. Addition of dependent coverage**

Spouse

Children

Soc. Sec.#

Sex

Birthdate

Coverages added:  Medical  Dental  Life  Other

**3. Change of beneficiary**

Name

Address

Relationship

I have read the authorization statement on the reverse side of this form and acknowledge the authorization is in effect until all claims are settled under this plan.

Employee's signature X

date

Employer's signature X

date

**Employee Change Card**

Employer name

Group number

Location number

Employer address

Effective date of change

Check here if this is an address change only

**2. Termination of dependent coverage**

All dependents

Spouse

Child name

Child name

Coverages terminated:  Medical  Dental  Life

Other

Check here if dependent terminated is now covered under the same program as an employee.

**4. Termination of employee coverage**

Employee coverage termination date

/ /

*Note: If COBRA is being administered by EBP HealthPlans, you must submit a COBRA Action Report when there is a loss of coverage and a qualifying event.*

CX002 (1/94)

White-employer

Yellow-employee

White tag-EBP HealthPlans

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<b>Travel Airfare</b>	06/27/97	<b>Montana</b>	476.00	0.00
<b>Travel Reimbursement</b>	06/27/97	<b>Montana</b>	427.10	0.00
<b>Relocation Reimbursement</b>	05/02/95	<b>Washington, DC</b>	0.00	<b>458.84</b>
<b>Moving Company</b>	05/02/95	<b>Washington, DC</b>	0.00	<b>1,733.59</b>
<b>Travel Reimbursement</b>	05/30/95	<b>Baltimore, MD</b>	287.00	0.00

## A Physics-Based Model of Solar Soft X-Ray and Extreme Ultraviolet Irradiance Variability

**Fellow:** Harry P. Warren, Code 7673W  
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**Advisors:** Judith L. Lean, Code 7673L, Space Sciences Division  
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John T. Mariska, Code 7673, Space Sciences Division  
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**Dates:** May 1, 1995 – November 1, 1995

**Research Objective:** A model of solar soft X-ray and extreme ultraviolet irradiance variability for use in upper atmospheric density forecasting.

**Research Summary:** Solar soft X-ray and extreme ultraviolet radiation controls the thermodynamics and chemical composition of the terrestrial upper atmosphere. The amount of radiation at these wavelengths which reaches the Earth's upper atmosphere is strongly dependent on solar activity and can vary by several orders of magnitude during the solar cycle. Models of the ionosphere and thermosphere presently use proxies for solar inputs such as the 10.7 cm radio flux. While these proxies are easy to measure, they are only indirectly related to the solar radiation that they are supposed to represent. We are developing a physics-based model which uses solar atomic line emissions, emission measure curves, and measures of solar activity to determine variations in solar soft X-ray and extreme ultraviolet irradiance.

Several important milestones for this project have been achieved in the past six months. We have assembled a database of over 3,600 full-disk images of the sun at four different wavelengths for the descending phase of solar cycle 22 (1991–1995). The images yield information about the conditions in the solar atmosphere from the photosphere to the corona and serve as inputs to the model.

To illustrate how a physics-based model can be used to predict the variation of optically-thin spectral lines in the ultraviolet and extreme ultraviolet spectrum we have calculated the emission in the CIV line at 1548.19 Å. By combining a simple model of the atomic transition with existing emission measure curves we compute the flux for both the background quiet sun and active regions. Since this emission originates in the transition region the contribution of each feature to the total, disk-integrated flux has been determined by analyzing CaII K images. We have validated the predictions of the model by comparing them with observations from the SOLSTICE experiment on the UARS satellite. The model successfully reproduces both the 27-day rotational modulation and the long term secular behavior of the UARS measurements. By correlating the plage areas determined from the CaII K image with other full-disk proxies for chromospheric activity, such as the He 10830 Å equivalent width or the Mg core to wing ratio, we have been able to extend the model back to 1977. This will allow us to compare the model to measurements of ultraviolet irradiance taken on the AE-E satellite taken during the ascending phase of solar cycle 21 (1977–1981).

Recently, progress has been made on modeling coronal soft X-ray emission from 1–300 Å using techniques similar to those employed in modeling the CIV emission. The contribution of coronal holes, quiet sun, and active regions to the spectral irradiance is determined by partitioning Yohkoh Soft X-Ray Telescope images using intensity thresholds. Comparison of the results of the model with soft X-ray data collected by instruments on the GOES-7 satellite shows, however, that transient phenomenon, such as solar flares, have a significant impact on the total X-ray flux at high levels of solar activity. If flare events are excluded, the agreement between the model and GOES measurements is good. In order to include the significant affect of solar flares on the total flux, we have begun a study of the statistical distribution of solar flare events and their relation to levels of coronal activity.

**Projected Impact:** The results of this research will lead to improved models of the ionosphere and thermosphere which are used in forecasting space weather for satellite operation and communication. Specifying this natural forcing of the thermosphere and ionosphere is also essential for assessing the true impact of human activity on the upper atmosphere.

Code 7673W  
Naval Research Laboratory  
Washington, D.C. 20375  
(202) 767-2350  
[hpw@pinoak.nrl.navy.mil](mailto:hpw@pinoak.nrl.navy.mil)

October 31, 1995

Luis Hernandez  
Program Manager  
American Society for Engineering Education  
1818 N Street, NW  
Suite 600  
Washington, DC 20036

Dear Mr. Hernandez

Enclosed is my Postdoctoral Fellowship Semi-Annual Progress Report which is due November 1, 1995. This is the first annual report I have submitted and I hope the format and content are appropriate. Note that since I submitted the Postdoctoral Fellowship Annual Report just last month, much of the material is similar. If you have any questions or if you need me to make any changes please contact me at the address listed above.

Thank you very much.

Sincerely,



Harry P. Warren